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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/196,673	11/20/1998	JOHN MCCAFFERTY	28111/32106B	9420

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EXAMINER	
PONNALURI, PADMASHRI	
ART UNIT	**PAPER NUMBER**
1639	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/196,673	MCCAFFERTY ET AL.	
	Examiner	Art Unit	
	Padmashri Ponnaluri	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45-109 and 145* is/are pending in the application.

4a) Of the above claim(s) *66-77* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45-65,78-109 and 145* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 9/27/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment and response filed on 9/27/04 have been fully considered and entered into the application. Claims 110-144 have been canceled and claims 78, 80, 82, 84 and 145 have been amended by the amendment file don 9/27/04.

Status of Claims

2. Claims 1-43 have been canceled, and new claims 44-144 have been added by the amendment filed on 11/20/98. New claim 145 has been added and Claim 44 has been canceled by the amendment filed on 10/10/00. Claims 110-144 have been canceled by the amendment filed on 9/27/04.

3. Claims 45-109, and 145 are currently pending in this application.

4. Claims 66-77 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6, filed on 1/21/00.

5. Claims 45-65, 78-109 and 145 are currently being examined in this application.

Maintained Claim Rejections

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 46, 48-65, 78-109 and 145 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0436597 B1 (Ladner et al) for the reasons set forth in the previous office action mailed on 3/25/04.

8. Claims 46, 48-65, 78-109 and 145 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 5,223,409 (LADNER et al) for the reasons set forth in the previous office action mailed on 3/25/04.

9. Claims 45-65, 78-109 and 145 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Ladner et al (US Patent 5,223,409) or EP 0436597 B1 (LADNER) for the reasons set forth in the previous office action mailed on 3/25/04.

New Claim Rejections Necessitated by the Amendment

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 44-65, 78-109, 145 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

The newly added limitation '..has enzymatic activity when displayed at the surface of filamentous bacteriophage particles...' claimed in Claims 44-65, 78-109, 145 has no clear support in the specification and the claims as originally filed. The subject matter claimed in claims alters the scope of the invention as originally disclosed in the specification.

Applicant should specifically point out the support for any amendments made to the disclosure and claims. See MPEP 714.02.

If applicants disagree, applicant should present a detailed analysis as to why the claimed subject matter has clear support in the specification.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 45-65, 78-109, 145 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: method step for determination of 'enzymatic activity' of the enzyme displayed as a fusion protein on a filamentous bacteriophage.

Response to Arguments

14. Applicant's arguments filed on 9/27/04, regarding the rejection over Ladner et al (EP 436597 B1) have been fully considered but they are not persuasive.

Claims 46, 48-65, 78-109 and 145 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0436597 B1 (Ladner et al).

Ladner et al teaches a method of obtaining a nucleic acid encoding a proteinaceous binding domain (refers to instant claim specific binding domain) that binds a predetermined target material (e.g., see page 5, Summary of the invention). The reference teaches a population of variegated genetic packages (refers to instant claim library), each said genetic package being genetically altered and having an outer surface protein (OSP) (refers to instant claim capsid protein or coat protein), and a nucleic acid construct coding a chimeric potential binding protein and outer surface (refers to the fusion protein of the instant claims) and expression of the construct results in the display of said chimeric potential binding protein. The reference teaches that the genetic packages are contacted with the predetermined target material (refers to instant claim contacting the library of filamentous bacteriophage particles with a desired ligand of the instant claims), and recovering at least one genetic package displaying the chimeric binding protein which bound to the target, and amplifying the selected genetic package

(displaying the binding protein) in vivo or in vitro. The reference teaches that once the binding protein is identified or selected, it can be used many times as the starting point r developing different novel proteins that bind to the target (refers to instant claims derivative specific binding pair) (e.g., see page 9).

The reference teaches displaying initial potential binding domain (IPBD) on outer surface of filamentous phages (e.g., see page 18). The reference teaches that the preferred OSP for use when genetic package is M13 is gene III protein (refers to gene III capsid protein of the instant claims) (e.g., see page 19, line 34).

The reference teaches that the choice of IPBD, and the T4 lysozyme is one among them (e.g., see page 20). The reference teaches that the T4 lysozyme is 164 residues long (refers to instant claim limitation 'enzyme is at least 100 amino acids') (e.g., see page 20, line 39). The reference further teaches that the target material may for example be selected from a non-macromolecular organic compounds, in which case the IPBDs may comprise more than about 80 amino acid residues. The reference teaches that the chosen IPBD is a T4 lysozyme (enzyme) (e.g., see page 21). The reference clearly anticipates the claimed invention.

Applicants argue that Ladner EP fails to teach each and every element of the instant invention and also fails to enable the practice of its own alleged invention.

Applicants argue that Ladner EP discloses no experimental results. Applicants argue that EP Ladner is not enabled. To support these arguments applicants refer to EPO Board of Appeal decision.

Applicant's arguments have been fully considered and are not persuasive. The EPO Board decision was based on limitations in claims 25-26, 29 of EP 436597 B1 and also regarding the use of either 'gIII or gVIII or segment thereof' as outer protein of filamentous phage. The instant rejections of record are not based on any of these limitations in Ladner EP. The limitations of the Ladner EP decided as non-enabling disclosure by the EPO Board are not relevant to the instant claimed rejection. Thus, applicant's arguments have been fully considered and are not persuasive.

Applicants refer to Ladner EP, disclosure at pages 25, 45, 49, and state that 'which point to various sources of possible failure in the practice of their alleged invention.' Applicant's arguments have been fully considered and are not persuasive. Applicant's arguments as discussed above are referring to 'experimental procedures', and 'the use of either gene III or gene VIII of the bacteriophage' are not relevant, since neither the instant claim nor the subject matter of EP Ladner used to reject the instant claims are drawn specifically to those limitations.

When the reference relied on expressly anticipates or makes obvious all of the elements of the claimed invention, the reference is presumed to be operable. Once such a reference is found, the burden is on applicant to provide facts rebutting the presumption of operability. In re Sasse, 629 F.2d 675, 207 USPQ 107 (CCPA 1980). (See MPEP 2121).

Applicants further argue the single Example I is hypothetical and is drawn to specific well-known protein BPTI. Applicant's arguments have been considered and are not persuasive. The reference claims are drawn to 'stable predetermined potential predetermined parental domain, other than a single chain antibody' as specific binding pair member, and the reference discloses the criteria in selecting the IPBD and methods for displaying as a fusion protein on a bacteriophage. And further, the instant claims do not exclude known proteins or enzymes. Thus, the reference EP Ladner anticipates the instant claimed invention.

Applicants argue that the disclosure of Ladner EP is wholly non-enabling of a display of any folded protein domain even as a small and stable BPTI a 58 amino acid with enzymatic activity.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., display of folded proteins; active enzyme) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicants argue that Ladner EP fails to disclose or enable the presently claimed combination of the display of an active enzyme or fragment thereof on filamentous phage. Applicants' arguments have fully considered and are not persuasive for the following reasons: the instant claim limitation is considered as new matter; the instant claim lacks a method step to determine that the displayed enzymes have enzymatic activity; and the reference Ladner EP has not shown that the displayed enzymes are completely inactive. Ladner EP discloses aspects of choice of IPBD, in which Ladner teaches that if the chosen IPBD is an enzyme, i.e., lysozyme, it may be necessary to change one or more residues in the active site to inactivate enzymatic function which is harmful to the vector or the host. However, Ladner EP teaches only if the enzyme is harmful thus require inactivation. However, the instant claims do not recite the method step to determine that the displayed enzyme has 'enzymatic activity.' Further Ladner EP discloses that IPBD is an enzyme, the activity of which has a lethal effect on the amplifiable GP, the host of the amplifiable GP, or the target, wherein the majority of the nucleic acid constructs code on expression of for an analogue of the known binding protein that does not have such lethal enzymatic activity (i.e., see claim 15). Thus, Ladner EP discloses display of active enzymes (less active) but not lethal enzymatic activity (relatively less activity).

Applicants argue that Ladner EP teaches inactivation of an enzyme when displayed on a filamentous phage it fails to disclose all of the elements of the present claims. Applicants arguments have been considered and are not persuasive, since Ladner teaches the displayed enzymes are less lethal, thus the displayed enzymes are still considered as active. Thus, the reference clearly anticipate the claimed invention.

15. Applicant's arguments filed on 9/27/04, regarding the rejection of claims over Ladner US (US Patent 5,223,409) have been fully considered but they are not persuasive.

Claims 46, 48-65, 78-109 and 145 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 5,223,409 (LADNER et al).

Ladner et al teach a method of obtaining a nucleic acid encoding a binding protein having proteinaceous binding domain (refers to instant claim specific binding pair) that binds a predetermined target material comprising: a) preparing a variegated population of amplifiable genetic packages (refers to the library of filamentous bacteriophage particles of the instant claims) and each genetic package has a chimeric protein construct comprising DNA encoding a potential binding domain, which is not a single chain antibody, and outer surface signal for display of potential binding domain; b) causing the expression of chimeric potential binding proteins and display of the potential binding domain on the outer surface of said packages; c) contacting said genetic packages with a predetermined target material; d) separating the genetic packages displaying on its outer surface potential binding domain that binds to the target material; e) recovering at least one package displaying on its outer surface a chimeric binding protein comprising a successful binding domain which bound to the target, and amplifying the binding domain in vivo or in vitro (e.g., see claim 1).

Ladner et al teach that the method of obtaining nucleic acid encoding a binding protein further comprises, I) isolating from the nucleic acid construct of genetic package bearing a successful binding domain (SBD), a nucleic acid fragment consisting essentially of DNA encoding said SBD to deduce the amino acid sequence of SBD and then preparing a second nucleic acid construct comprising DNA encoding a SBD (e.g., see claim 7). The reference teaches that the potential binding domain is selected from the group consisting of a) a binding domain of bovine

pancreatic trypsin inhibitor, protease inhibitors or lysozymes (refers to the enzyme or fragment thereof the instant claims) (see e.g., claim 11). The reference teaches that a second binding protein is prepared using the first SBD and recombinant technology (e.g., see claim 29). The reference claim 39 teaches that the replicable genetic packages are filamentous phage (refers to the instant claim bacteriophage vectors). The reference further teaches that the outer surface transport signal is provided by the gene III protein of the filamentous phage (e.g., see claim 41). The reference teaches that IPBD is T4 lysozyme of 164 residues (e.g., see column 21, line 13)(refers to the instant claim enzyme of at least 100 amino acids). The reference further teaches that if the target is a small molecule , the IPBD is a protein of 80-200 residues (see e.g., column 22) (refers to the enzyme which is at least 200 amino acids of the instant claims), such as ribonuclease (104 residues), egg white lysozyme (104 residues), T4 lysozyme (164 residues) (e.g., see column 22) . Thus the reference clearly anticipates the claimed invention.

Applicants argue that the US Patent to Ladner fails to teach or claim the specific combination of features presently claimed and therefore the rejections should be withdrawn. Applicants argue in particular, there is no specific disclosure of the combination of display of an enzyme or fragment thereof with enzymatic activity on the surface of filamentous bacteriophage. Applicants arguments have been considered and are not persuasive for the following reasons: applicants have not shown the support for the newly added limitation (has enzymatic activity when displayed at the surface of filamentous bacteriophage particles) in the specification as originally filed; and the instant claimed method does not recite the required step to determine that the enzyme has enzymatic activity; and further Ladner US teaches that if IPBD is an enzyme, it may be necessary to change one or more residues in the active site, and further the reference teaches that those GPs that receive osp-pbd genes encoding an active enzyme may die, but the majority of the sequences will not be deleterious'; thus Ladner US teach how to display enzymes on a display vector (may be M13 or filamentous bacteriophage) which are not that harmful.

Applicants argue that Ladner US teaches a preference for small, stable protein domains, there is not explicit disclosure of display of large (e.g., greater than 100 amino acids or greater than 200 amino acids) protein domains on the surface of filamentous bacteriophage where enzymes are enzymatically active. Applicant's arguments have been considered and are not persuasive. Ladner US teaches that if the IPBD is a protein of about 80-200 residues can be manipulated by standard techniques for purpose of this invention, and Ladner US specifically claim that the IPBD is enzyme (i.e., see claim 11), filamentous bacteriophage is GP (i.e., see claim 35, 39). And claim 45 is not included in this rejection, which recites that the enzyme or fragment is at least 200 amino acids. Thus, the rejections of record have been maintained for the reasons of record.

16. Applicant's arguments filed on 9/27/04 regarding the obviousness rejection over Ladner have been fully considered but they are not persuasive.

Claims 45-65, 78-109 and 145 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Ladner et al (US Patent 5,223,409) or EP 0436597 B1 (LADNER).

Ladner et al teach a method of obtaining a nucleic acid encoding a binding protein having proteinaceous binding domain (refers to instant claim specific binding pair) that binds a predetermined target material comprising: a) preparing a variegated population of amplifiable genetic packages (refers to the library of filamentous bacteriophage particles of the instant claims) and each genetic package has a chimeric protein construct comprising DNA encoding a potential binding domain, which is not a single chain antibody, and outer surface signal for display of potential binding domain; b) causing the expression of chimeric potential binding proteins and display of the potential binding domain on the outer surface of said packages; c) contacting said genetic packages with a predetermined target material; d) separating the genetic packages displaying on its outer surface potential binding domain that binds to the target material; e) recovering at least one package displaying on its outer surface a

chimeric binding protein comprising a successful binding domain which bound to the target, and amplifying the binding domain in vivo or in vitro (e.g., see claim 1).

Ladner et al teach that the method of obtaining nucleic acid encoding a binding protein further comprises, I) isolating from the nucleic acid construct of genetic package bearing a successful binding domain (SBD), a nucleic acid fragment consisting essentially of DNA encoding said SBD to deduce the amino acid sequence of SBD and then preparing a second nucleic acid construct comprising DNA encoding a SBD (e.g., see claim 7). The reference teaches that the potential binding domain is selected from the group consisting of a) a binding domain of bovine pancreatic trypsin inhibitor, protease inhibitors or lysozymes (refers to the enzyme or fragment thereof the instant claims) (see e.g., claim 11). The reference teaches that a second binding protein is prepared using the first SBD and recombinant technology (e.g., see claim 29). The reference claim 39 teaches that the replicable genetic packages are filamentous phage (refers to the instant claim bacteriophage vectors). The reference further teaches that the outer surface transport signal is provided by the gene III protein of the filamentous phage (e.g., see claim 41). The reference teaches that IPBD is T4 lysozyme of 164 residues (e.g., see column 21, line 13)(refers to the instant claim enzyme of at least 100 amino acids). The reference further teaches that if the target is a small molecule , the IPBD is a protein of 80-200 residues (see e.g., column 22) (refers to the enzyme which is at least 200 amino acids of the instant claims), such as ribonuclease (104 residues), egg white lysozyme (104 residues), T4 lysozyme (164 residues) (e.g., see column 22) .

The reference does not teach that the enzyme (IPBD) is at least of 200 amino acids. Ladner et al teach the method of identifying nucleic acid encoding an enzyme (potential binding domain) from plurality of genetic packages displaying chimeric protein comprising the enzyme and a gene III coat protein. The reference teaches that the potential binding domain is T4 lysozyme of 164 residues (e.g., see column 21, line 13). The reference has not taught a potential binding domain of at least 200 amino acids. However, the reference teaches that depending on the size of the target the potential binding domain size is determined, and if the target is a small molecule , the potential binding domain is a protein of 80-200 residues (see e.g., column 22). Thus it would have been obvious to one skilled in the art at the time the invention was made to use an enzyme or fragment of the size at least 200 amino acids. A person skilled in the art would have been motivated to use the methods taught by Ladner et al to obtain new or modified nucleic acids encoding enzymes of at least 200 amino acids, because Ladner et al teaches all the

required criteria in selecting the potential binding domains and use the selected binding domains (enzymes) having desired affinity to the target in designing a family of potential new enzymes.

Applicants assert that Ladner EP and Ladner US contrary to Examiner's assertions are two different disclosures. Applicants' assertions have been considered. Examiner apologizes for the confusion caused by the NOTE in the previous office action. Examiner would like to with draw that sentence that both the disclosures are similar.

Applicants argue that Ladner EP disclosure is totally hypothetical devoid of experimental results non-enabling and therefore, can not properly serve as a proper obviousness reference against the present application because the reference is not available for purposes of 35 USC 102 are also not available under 35 USC 103.

Applicants arguments have been considered and are not persuasive as for the reasons set forth supra (see the response to the anticipatory rejection over EP 436597 B1).

Applicants argue that Ladner US actually teaches away from the present invention and therefore cannot render the present invention obvious. Applicants arguments have been considered and are not persuasive, since applicants have not specifically pointed out which parts of the reference disclosure is teaching away. Applicants refer to the teachings of Ladner US 'the use of M13 or bacterial vectors in displaying lysozyme', which is considered as specific to lysozmes, and further the reference teaches enzymes other than lysozyme. And since the reference teaches the method of displaying non-antibody potential binding domains on bacteriophage vectors, and teaches the criteria in selecting the potential binding domains, thus it would have been obvious to one skilled in the art to display enzymes on display vectors as fusion proteins.

Applicants further argue that the experimental example use BPTI, a small very stable non-enzymatic proteins chosen precisely because it is smaller and very stable. Applicants inference that since Ladner's example of stable, small BPTI as potential binding domain to display on bacteriophage vectors 'less stable proteins such as enzymes are not likely to be successfully displayed on the surface of the filamentous phage' is not accurate. Applicants inference has been considered and is persuasive for the following reasons: Ladner et al does not disclose that only stable proteins are displayed as fusion proteins, and not enzymes; the instant claims do not recite method steps to show that the displayed proteins are active enzymes; Ladner et al teach methods of displaying potential binding domains on phage display vectors as fusion proteins, and the reference discloses all the criteria in selecting the potential binding domains. It would have been obvious to one skilled in the art at the time the invention was made to display enzymes since Ladner et al teach the methods of displaying potential binding domains. And further, the instant claims have not shown method steps, which are required to display the enzymes as active enzymes, i.e., neither the instant claims and/or nor the specification disclose how the vectors (vector design) are different from the prior art, and the essential method steps which would enable the filamentous phage to display the active enzymes.

Applicants further assert that prior to the present invention, it was not possible to display a polypeptide larger than 100 amino acids and which are functional at the surface of a phage particle. Applicants refer to several references (Smith et al , 1988; Bass et al, 1990; and Smith et al, 1988), which contain no experimental demonstration of display of large inserts on the surface of phage; and furthermore, there was no expectation of being able to display a functional, folded protein domain, especially such domain larger than 100 amino acids. Applicants further assert

that the instant invention overcame the prejudice in art by providing, for the first time, an enabling disclosure and specific working examples of the bacteriophage display of functional protein domains having at least 100 amino acids including, for the first time, the display of active enzymes.

Applicants' assertions have been considered and are not persuasive. Ladner et al teach the methods for displaying non-antibody potential binding domains as fusion proteins on phage display vectors, teach all the criteria necessary in selecting the non-antibody potential binding domains, it would have been obvious to one skilled in the art to use the reference methods to display enzymes on the surface of filamentous bacteriophage. A person skilled in art would have been motivated to use the reference disclosure to display different types of potential binding domains on the surface of filamentous phage and use the vectors to identify useful binding pairs, and the vectors can be used in therapy or can be used in diagnosis methods. If applicants do not agree that the reference method does not enable, applicants are requested to file a declaration showing that the reference method would not result in display of active enzymes. Further, applicants have not shown support for the instant amended claims 'the displayed enzyme has enzymatic activity'; and the claims do not recite the essential method steps, which are required to determine that the displayed enzyme is functionally active. Thus, the rejections of record have been maintained for the reasons of record.

Conclusion

17. No claims are allowed.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Padmashri Ponnaluri whose telephone number is 571-272-0809. The examiner is on Increased Flex Schedule and can normally be reached on Monday through Friday between 7 AM and 3.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Padmashri Ponnaluri
Primary Examiner
Art Unit 1639

20 December 2004

PADMASHRI PONNALURI
PRIMARY EXAMINER